प्रिंस धवन भा.प्र.से.
कार्यकारी निदेशक
Prince Dhawan, IAS
Executive Director

सत्यमेव जयते

आरईसी
REC
असीमित ऊर्जा, अनन्त संभावनाएं.
Endless energy. Infinite possibilities.
A MAHARATNA COMPANY

Lr No REC/PMD(RDSS)/2025-26/ 52

Dated: 21.03.2026

To

The Chairperson / Managing Director
All State Power Distribution Utilities (DISCOMs)

Subject: Submission of Requirements for Deployment of AI/ML-based Use Cases in Distribution Sector

Sir / Madam,

Kind reference is invited to the Ministry of Power's communication dated 16th January 2026, on scaling up of AI/ML based solutions in the Power Distribution Sector (copy enclosed). The said communication outlines the broad framework for transitioning from pilot-based initiatives to structured, scalable, and regulator-aligned deployment of validated use cases across DISCOMs.

In pursuance of the above, RECPDCL Limited proposes to facilitate the structured adoption of AI/ML-based use cases categorized under Revenue Creation (RC e.g. revenue recovery, saving through better billing/collection etc) and Revenue Optimization (RO, efficiency improvement e.g. outage management, asset health, cyber security etc). The detailed categorization, indicative use cases and hybrid illustrations (combination of both RC and RO) are contained in the enclosed communication and may kindly be referred to for ready reference.

With a view to aggregating demand and structuring a uniform procurement framework, your DISCOM is requested to submit its requirements indicating the proposed scope of implementation, coverage and baseline parameters for benchmarking, format enclosed. The requirements, once submitted, will be treated as a firm commitment by the DISCOM and shall form the basis for demand aggregation, commercial structuring, and preparation of a standardized Request for Proposal (RFP) by RECPDCL.

1. Role of RECPDCL as Bid Process Coordinator (BPC) / Nodal Agency

RECPDCL, in its capacity as the designated Bid Process Coordinator (BPC) and Nodal Agency, shall discharge the following specific responsibilities:

a) Common Procurement Guidelines and Standardized RFP: RECPDCL shall prepare and issue a common, standardized Request for Proposal (RFP) on behalf of all participating DISCOMs, conforming to the General Financial Rules (GFR) 2017. The RFP shall incorporate standardized contractual terms, performance-linked structures, and use case-specific commercial models (for revenue creation and hybrid use cases), ensuring uniformity, transparency, and competitive price discovery across DISCOMs. A brief of the commercial model for RC and hybrid use case is given in section 3 of this letter.

b) Cost-Effective Demand Aggregation: RECPDCL shall aggregate the Binding Requirements received from DISCOMs to consolidate demand across States and use case categories. This aggregation shall enable the economies of scale, attract credible Technology Solution Providers (TSPs) through larger deployment volumes, and achieve cost-effective pricing through combined procurement volumes across participating DISCOMs.

c) Support in Solution Selection: RECPDCL may, on a case-to-case basis, extend support to participating DISCOMs in the identification of appropriate use case buckets combining Revenue Creation and Revenue Optimization solutions as a portfolio best suited to each DISCOM's existing capabilities, infrastructure maturity, and operational priorities. Such support shall be provided upon expression of interest by the concerned DISCOM.

d) Technical Evaluation and Empanelment: RECPDCL shall constitute Technical Evaluation Committees comprising domain experts, DISCOM-nominated representatives, and independent specialists to evaluate TSP proposals. TSPs shall be empaneled based on demonstrated capabilities, pilot outcomes, and technical merit. Technically qualified bidders willing to match the L1 terms shall also be empaneled — adopting the L1/L2 matching mechanism to ensure diversity in solution providers while maintaining competitive pricing.

e) Independent Third-Party Evaluation: To ensure transparency, technical robustness, and regulatory alignment, RECPDCL shall facilitate the appointment of an independent Third-Party Evaluator. The Third-Party Evaluator shall undertake:

- Baseline validation prior to solution deployment.
- Continuous KPI monitoring and benchmarking during implementation.
- Outcome certification and impact assessment.
- Preparation of regulatory documentation and evidence to facilitate cost pass-through submissions before the respective State Electricity Regulatory Commissions (SERCs).

The cost of such third-party evaluation shall be structured within the approved revenue-sharing mechanism to avoid any upfront financial burden on DISCOM.

f) Centralized Data Repository and Cross-DISCOM Emulation: RECPDCL shall establish and maintain a **centralized data repository** of use cases, processes, outcomes, and best practices to enable cross-DISCOM knowledge sharing and encourage emulation of successful AI/ML deployments implemented by any TSP in one DISCOM across other DISCOMs nationally.

g) Ongoing Coordination and Monitoring: RECPDCL shall provide ongoing program coordination, including quarterly progress reviews, milestone tracking, inter-DISCOM coordination, and escalation management throughout the contract period.

2. DISCOM Responsibilities

To ensure the success of this initiative and the effective deployment of AI/ML solutions, each participating in DISCOM shall be responsible for the following:

a) Submission of Binding Requirements: The DISCOM shall submit its Binding Requirement within 30 days from the date of issuance of this letter, indicating the proposed scope of implementation, priority use cases (from the enclosed taxonomy), coverage area, baseline parameters, digital readiness status, and preferred implementation model. The Binding Requirement shall be treated as a firm commitment duly approved by DISCOM's competent authority. This includes accepting the financial price discovery through a transparent procurement process conducted by RECPDCL as BPC and the overhead BPC fees can be mutually agreed.

b) Data Access and Infrastructure Readiness: The DISCOM shall ensure timely access to all requisite data, IT/OT systems, AMI platforms, and operational infrastructure necessary for the deployment,

testing, and validation of AI/ML solutions by the empaneled TSP(s). The DISCOM shall designate a Nodal Officer (not below the rank of Superintending Engineer / General Manager) as the single point of contact for all project-related coordination.

c) Nomination of Officers for Evaluation and Customization: The DISCOM shall nominate suitable senior officers from Technical, Commercial, and Operations domains to participate in:

- Use Case Selection and Customization Committee (for finalization of DISCOM-specific use case buckets).
- Technical Evaluation Committee (for assessment of TSP proposals).

The nominated officers shall be authorized to take decisions on behalf of the DISCOM within the scope of this initiative.

d) Pilot Facilitation and DISCOM-Wide Scale-Up: The DISCOM shall actively facilitate the Phase I pilot deployment in designated areas, including field support, data sharing, and validation of pilot outcomes. Upon successful validation, the DISCOM shall commit to Phase II DISCOM-wide rollout of validated use cases as per the agreed timelines and contractual terms. Phase-I shall form part of the RFP evaluation process itself.

e) Financial Obligations and Payment Discipline:

The DISCOM shall honour all financial commitments arising from the Revenue Sharing Model and/or Expense Model as per the terms of the DISCOM-specific agreement executed with the empaneled TSP. This shall include, but not be limited to:

- **TSP Payments:** Timely disbursement of the TSP's share of incremental revenue/savings (under the Revenue Sharing Model) or milestone-based / periodic payments (under the Expense Model), as per the agreed schedule and terms.
- **Third-Party Evaluation Charges:** Payment towards the independent Third-Party Evaluator for baseline validation, KPI monitoring, outcome certification, and regulatory documentation support.
- **Bid Process Coordination Fee:** Payment of the **Bid Process Coordination Fee** to RECPDCL Ltd regarding the costs incurred in demand aggregation, standardized RFP preparation, technical evaluation, empanelment, procurement management, ongoing program coordination, and contract oversight. The BPC Fee shall be as defined in the DISCOM-specific agreement and shall be payable either as a defined percentage of the incremental revenue/savings (under the Revenue Sharing Model) or as a component of the overall project cost recoverable through the ARR (under the Expense Model).

g) Capacity Building and Change Management: The DISCOM shall nominate personnel for training and capacity building programs conducted by the TSP and shall facilitate internal change management processes to ensure effective adoption and sustainability of deployed solutions.

3. Commercial Framework

The procurement shall be structured around the following dual commercial framework:

Revenue Sharing Model (for Revenue Creation Use Cases): The cost of the Technology Solution Provider (TSP) shall be met through a Revenue Sharing Model, whereby the TSP's compensation is directly linked to the incremental revenue / quantifiable cost savings generated by the deployed AI/ML solutions. DISCOM shall not be required to make upfront capital expenditure for RC use cases. The incremental revenue/savings shall be shared among the DISCOM & TSP. The payment terms of 3rd party evaluator and RECPDCL as BPC shall also be finalized in consultation with DISCOM.

For **hybrid use cases** (combination of both Revenue Creation (RC) and Revenue Optimization (RO) components), the same Technology Service Provider (TSP) implementing the revenue creation use cases shall also execute the RO use case together as part of the hybrid use case. The associated costs shall be met from the revenue-sharing benefits generated under the RC model as part of the hybrid use case.

REC looks forward to the active cooperation of your DISCOM in operationalizing this sector-wide reform initiative aimed at strengthening digitization and operational efficiency in the distribution sector. **It is requested to submit your Expression of Interest and share the filled-up annexures latest by 20.04.2026.**

Warm Regards,

21/3/26

(Prince Dhawan, IAS)
Executive Director-PMD

Enclosures:

Enclosure-I: MoP letter dated 16th January 2026 to all states on Scale up of the AI/ML based solution in power distribution sector
Enclosure-II: Prescribed Response Template for DISCOM Binding Requirements
Enclosure-III: Nomination Form for DISCOM Representatives

ENCLOSURE – I: MoP letter dated 16th January 2026 to all states on Scale up of the AI/ML based solution in power distribution sector.

Shram Shakti Bhawan, New Delhi
Date: 16th January, 2026

To,

Additional Chief Secretaries/Principal Secretaries/Secretaries (Energy/Power) of all States /
Union Territories

Sub: Scale up of AI/ ML based solutions in Power Distribution Sector

Sir/Madam(s),

This Ministry has been actively promoting digitalisation of the power distribution sector, with emphasis on leveraging data generated from Advanced Metering Infrastructure (AMI) and other IT/OT platforms through initiatives like the Powerthon under the Revamped Distribution Sector Scheme (RDSS).

2.   In this regard, there is now a felt requirement to implement such AI/ML based solutions for measurable and quantifiable outcomes at Utility scale. Based on the deliberations in the recently conducted Data Analytics conference and with stakeholders concerned, a framework has been developed by this Ministry to facilitate the DISCOMs in adopting such digital solutions at scale (enclosed as **Annexure**).

3.   The proposed approach envisages:

   a.   Selection of use cases based on an assessment of the digital readiness of the DISCOMs.
   b.   Flexible bundling of use-cases, covering both revenue creation and revenue optimization (efficiency improvement) solutions, based on the digital readiness and priorities of the DISCOM;
   c.   PFC/ REC to act as bid process coordinators for technical evaluation, structuring of procurement/ RfP documents, and standardisation of commercial models reducing duplication of effort and shortening implementation timelines.
   d.   Solutions qualified for pilot under Powerthon and shortlisted solutions in the AI/ML conference are considered empanelled by the Nodal agencies and evaluated for technical evaluation.
   e.   Linking implementations with clear outcome measurement, with emphasis on tangible improvements such as reduction in AT&C losses, improvement in billing and collection efficiency, enhancement of reliability, optimisation of power procurement, and better consumer services.

4.   In view of the above, the proposed framework is enclosed as **Annexure** for kind perusal and necessary action.

5   This issues with the approval of Competent Authority.

Encls: As above

(Bimlesh Pawar)
Under Secretary to the Govt. of India
Tel: 011-23705957
E-mail: bimlesh.pawar@nic.in
ursi2desk-mop@gov.in

Copy to:

   1.   CMDs/MDs of DISCOMs of all States/ UTs
   2.   CMD, REC Ltd.
   3.   CMD, PFC Ltd.

Also copy to: PPS to Secretary (Power)/PSO to Joint Secretary (Distribution)/PPS to Director(URSI)

Use of AI/ML in Power Distribution Sector| Way forward

The 1st National Conference on the Use of Artificial Intelligence and Machine Learning (AI/ML) in the Power Distribution Sector organized by the Ministry showcased various solutions that leveraged data generated from Advance Metering Infrastructure (AMI) system, and IT/OT platforms to improve operational efficiency, financial sustainability, and consumer experience in DISCOMs.

The conference witnessed participation from a wide spectrum of stakeholders including State and private DISCOMs, Technology Solution Providers (TSPs), Advanced Metering Infrastructure Service Providers (AMISPs), Home Automation Solution Providers (HASPs), start-ups, academic institutions, regulators, and central agencies. From 195 applications, 51 solutions were shortlisted and presented across thematic areas such as revenue protection, demand forecasting, outage management, asset health, renewable integration, consumer analytics, and home automation. Finally, 7 best solutions were selected and awarded by Hon"ble Union Minister of Power.

A strong consensus emerged that AI/ML is transitioning from pilot-based experimentation to field-ready and scalable deployment, enabled by RDSS-led digitalization. Participants broadly agreed that AI/ML can materially contribute to AT&C loss reduction, improvement in billing and collection efficiency, enhancement of grid reliability, optimization of power procurement, and delivery of consumer-centric digital services. The conference also underlined the importance of standardized data frameworks, cybersecurity, capacity building, and regulatory enablement to scale these solutions nationally.

Further, a significant problem statement which emerged from the conference was the need for a standardised framework for adoption of the innovations and solutions at utility scale with emulation of best practices across the country. Accordingly, based on deliberations with stakeholders concerned, the following approach and methodology has been prepared so that the benefits of smart metering/ digitalisation can be leveraged by DISCOMs across the country in a uniform manner.

Way Forward for Technology Solution Providers (TSPs)

Approach to Scale–up:
To accelerate adoption of field-ready AI/ML solutions in the power distribution sector and avoid fragmented, pilot-only outcomes, a structured scaling and deployment strategy is recommended. The TSPs should move beyond isolated pilots towards structured scale-up across DISCOMs through a phased approach:

Phase I (pilot validation with KPIs)
Phase II (DISCOM-wide rollout of validated use cases)

The solutions provided in the current scenario can be classified into two- categories based on outcomes of the implementation:

- Revenue Creation (e.g., revenue recovery, savings through better billing/collection)
- Revenue Optimization(Efficiency Improvement)(e.g., outage management, asset health, data integration, cybersecurity)

Revenue Optimization (Efficiency Improvement) solutions are often under-invested because they lack immediate ROI, yet they are the enablers needed for revenue solutions to scale—clean meter data, IT/OT integration, field workflows, and network visibility. Without these, revenue initiatives remain pilots with limited impact.

In view of the above, an approach of Use Case bucketing is being proposed in which the DISCOMs can procure a bucket of solutions including solutions from both the categories, based on the digital readiness of the DISCOM as assessed by PFC/REC. The bucket approach will allow DISCOMs to obtain solutions as a portfolio, combining enablers while retaining focus on generation of revenue or ensuring cost savings as quantifiable outcomes for a sustainable, scalable adoption.

An indicative list of use cases as per the above classification may be seen in **Annexure 1** and use case buckets in **Annexure 2**.

Process for Adoption/procurement of solutions and structuring of RfP:

The following steps are suggested to facilitate the adoption of solutions of TSPs by the DISCOMs:

- **Empanelment of TSPs:**PFC/REC will empanel the TSPs for their respective States on the following basis:
  - Successful selection forpilot phase under Powerthon
  - TSPs shortlisted for presentation in AI/ML conference
  - Any new pilot after outcome validation by DISCOM and PFC/REC
  PFC/REC will constitute technical committees on the lines of Powerthon to evaluate the solutions for scale up.

- **Selection of Use Cases:** PFC/REC may suggest the DISCOM regarding utility of the solutions based on an assessment of the digital readiness of the DISCOM.

- **Structuring of RfP**: PFC/REC will act as the Nodal agency/Bid process coordinator and prepare a common RfP for TSPs conforming to the coral formalities as per GFR. The RfP will include both the models:
  - Revenue Sharing Model: For Use case buckets and revenue generating solutions
  - Expense Model: For Revenue Optimization (Efficiency Improvement) use cases

While designing the expense model-based use case, regulatory alignment has to be ensured by the DISCOM so that the O&M expenses are included in the ARR calculations. Further, the present issues/challenges being faced in the DISCOMs such as data quality, legacy integration, cybersecurity, change management, and field usability should be factored in while preparing the document.

The Use case specific standard Revenue sharing models should be prepared by REC in consultation with the stakeholders concerned, which maybe incorporated in the RfPs being prepared and customised as per the needs of the DISCOMs

Impact Measurement & Evidence Building

For sustained adoption, both PFC and REC should evolve mechanisms to monitor the demonstrated outcomes of TSPs including reduction in AT&C- improvement in billing and collection efficiency, reduction in outage duration and frequency, operational cost savings, workforce productivity, and improvement in consumer satisfaction. Structured baselining, continuous monitoring, and periodic reporting should be followed, supported by independent third-party evaluation to validate outcomes.

Data Repository of use cases

REC will arrange a a centralized data repository of use cases, processes, and outcomes to enable PFC/REC for encouraging emulation of best practices implemented by any TSP in one DISCOM across other DISCOMs.

Annexure 1 – Revenue Creation(RC) &Revenue Optimization (Efficiency Improvement) (RO) Use Cases

Table 1- Revenue Creation(RC) use cases

S.No	Use Case	Category	Description
1	Revenue protection and theft detection	RC	Converts non-billed consumption into assessments/penalties and recovered arrears by detecting theft/tamper patterns and triggering field verification.
2	AT&C loss reduction	RC	Revenue recovery via lead-based irregularity detection + loss-to-bill conversion (technical loss reduction improves billing efficiency and realization).
3	Improved Power Quality / Smart Metering / Load & Demand Analytics	RC	Billing accuracy + revenue assurance from smart meter analytics (identifies anomalies, improves metering/reading integrity); PQ/analytics largely reduce cost but metering drives cash impact.
4	Digital Billing, Monitoring & Settlement Platforms	RC	Improves tariff realization & collections by reducing billing disputes, automating settlements, tightening audit trails (less leakage, faster closure).
5	Demand response aggregation for market participation	RC	Creates new monetization by selling aggregated flexibility in markets (fees/revenue share; capacity/ancillary-style payouts where applicable).
6	Storage and energy shifting products	RC	Enables paid products/services (peak-shift blocks, firming, arbitrage services) with settlement based on verified delivery.
7	Energy accounting and AT&C loss analysis	RC	Finds billing gaps/leak points (input vs billed mismatch) enabling targeted actions that increase billed and collected revenue.
8	Time-of-use tariffs and dynamic pricing	RC	Drives higher realization by aligning price to time-based cost and improving collection discipline (better bill structure, reduced cross-subsidy leakage).
9	Prepaid metering and recharge	RC	Converts consumption into upfront cash collection, reducing arrears and improving collection efficiency (pay-before-use).
10	EV charging integration and managed charging	RC	Adds new billable demand (EV charging units billed) and supports managed charging; revenue comes from incremental sales (plus cost control).

Table 2- Revenue Optimization (Efficiency Improvement) (RO) use cases

S.No	Use Case	Category	Description
1	RE Integration in Distribution System	RO	Focuses on grid stability/compliance (safe inverter behavior, tamper-proof generation logs); doesn't directly increase billing/collections.
2	Distribution Asset Management	RO	Delivers O&M and outage cost avoidance via predictive maintenance and asset traceability; revenue uplift is indirect at best.
3	Transparency portals and public data publishing	RO	Primarily compliance + transparency + benchmarking; no direct mechanism to increase billed units or collections.
4	Load forecasting and demand analytics/ Power Purchase Cost optimization	RO	Reduces power purchase cost & deviation penalties through better planning; impacts profit but not top-line revenue generation directly.
5	Outage management for distribution	RO	Improves reliability and restoration speed; financial upside is typically penalty avoidance (indirect), not new revenue.
6	Network planning and investment prioritization	RO	Improves capex efficiency & hosting capacity decisions; economic benefit is long-term cost optimization rather than immediate revenue.
7	DER integration and prosumer settlement	RO	Ensures accurate net-metering/settlement & operational control; typically neutral to revenue (may even reduce net sales).
8	Demand response program delivery and settlement	RO	Financial benefit is peak reduction / avoided purchase / avoided infra; programs usually pay incentives, so revenue is indirect.
9	Customer energy advisory and alerts	RO	Improves engagement/efficiency; often reduces consumption and bills—value is CX and system efficiency, not revenue growth.
10	Grievance and service request management	RO	Improves SLA, responsiveness, and trust; financial impact is mainly complaint cost reduction/penalty avoidance.

S.No	Use Case	Category	Description
11	Subsidy eligibility and benefit delivery	RO	Ensures correct subsidy targeting and reduces leakage; generally, compliance and reconciliation, not incremental DISCOM revenue.
12	Digital Twin	RO	Real-time virtual replica of the power grid that optimizes stability, predicts equipment failures, and automates the integration of renewable energy sources.

Annexure 2 – Revenue Creation (RC)&Revenue Optimization (Efficiency Improvement) (RO) hybrid use case illustrations

Smart Meter Analytics / Power Quality Platform
RC: Detects theft/tamper/wrong categorization → recovery + better billing accuracy
RO: Improves voltage balance / phase issues → fewer complaints & outages

Outage Management + Meter Insights
RC: Flags illegal reconnections / missing reads post-outage → revenue protection
RO: Faster restoration + optimized crew dispatch → SAIDI/SAIFI improvement

Prepaid Metering + Alerts
RC: Pay-before-use → arrears reduction & improved collections
RO: Low-balance/usage alerts → fewer disputes, better CX

EV Charging + Managed Charging
RC: New billed EV load → incremental sales
RO: Shifts charging off-peak → capex deferral & reliability gains

DER Integration + Prosumer Settlement
RC: Prevents settlement leakage (export anomalies/config errors) → revenue assurance
RO: Grid stability + hosting capacity visibility → operational resilience

Asset Management + Loss Reduction
RC: Targets high-loss DTs/feeders → AT&C improvement (more realized energy)
RO: Predictive maintenance → lower failures & O&M cost

Demand Response Program + Market Aggregation
RC: If aggregated into markets → flexibility/fee revenues
RO: Peak shaving → avoided power purchase + deferred capex

ENCLOSURE – II: Prescribed Response Template for DISCOM Binding Requirements

a) Name of the DISCOM/PD:

b) Name of the proposed use case: Kindly fill separate sheet for each use case

S.No.	Proposed KPI to be improved through implementation of proposed Use case	UoM	Current value (A)	Proposed Target to be achieved after implementation of Use case (B)	Timeline for Achievement (Months) (C)
1	AT&C Loss	(%)			
2	Billing Efficiency	(%)			
3	Collection Efficiency	(%)			
4	SAIDI- System average interruption duration Index	Hours			
5	SAIFI- System average interruption frequency Index	Nos			
6	Revenue Recovered from Theft/Tamper	Rs Cr/annum			
7	Power Purchase Cost Savings	Rs Cr/annum			
8	O&M Cost Reduction	Rs Cr/annum			
9	Transformer failure rate	% of total Installed capacity			
10	Any other DISCOM-specific metric (please specify)				

Note:

a) For current value (against column A), kindly take the data of latest available like. For FY 24-25 or up to Q3 FY 25-26.

b) For proposed target value (against column B) comparison will be made with the same time period which is taken in column A.

ENCLOSURE – III

NOMINATION OF DISCOM REPRESENTATIVES

(To be submitted on the official letterhead of the DISCOM, duly signed by the Managing Director or authorized signatory)

Reference: Lr No REC/PMD(RDSS)/2025-26/ dated [DD/MM/YYYY] Name of DISCOM: [Full Legal Name of DISCOM] Date: [DD/MM/YYYY]

A. Use Case Selection & Customization Committee

(Minimum 1 nominee required)

S.No.	Full Name	Designation	Department	Domain Expertise	Official Email	Mobile No.
1						
2 (Alternate)						

B. Authorization & Terms of Participation

The above-nominated representatives are hereby authorized to:

S.No.	Scope of Authorization
(a)	Participate in all meetings, presentations, and evaluation sessions convened by REC Ltd for this initiative
(b)	Provide inputs on DISCOM-specific use case selection, customization, and deployment priorities

Name of Authorized Signatory:	
Designation:	Managing Director / [Authorized Signatory]
Date:	
Place:	
Seal / Stamp of DISCOM:	

— *End of Enclosure-III* —